# RingMaster Software™

## Quick Start Guide

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# RingMaster 7.1 Quick Start Guide

This Guide provides a description of prerequisites and procedures required to install and begin using RingMaster 7.1 software. RingMaster is a Graphical User Interface (GUI) based Lifecycle Management Suite used to plan, configure, deploy, and manage a Wireless Local Area Network (WLAN). Information is provided about system requirements for optimum RingMaster performance, as well as how to install RingMaster Client and RingMaster Services software.

## Software Requirements

*Note: Windows XP* prior to SP1 is *not* supported for servers.

*RingMaster Client* and *RingMaster Services* are each supported on the following operating systems:

- Microsoft *Windows Server 2008*, Microsoft *Windows Server 2003*, Microsoft *Windows XP* with Service Pack 1 or higher, Microsoft *Windows 2000* with Service Pack 4, or Microsoft *Vista Enterprise*.
- SUSE *Linux* 10.2,and Red Hat *ES 5*.
- Microsoft *Vista* or *Windows XP* with Service Pack 2, or Microsoft *Windows 2000* with Service Pack 4 for client
- Apple Macintosh *OS 10.5.x* with *Java 1.5* for the client only.

Informational Note: You must use the English version of these operating systems. Operating system versions in other languages are not supported by *RingMaster*.

The following additional software is required for some *RingMaster 7.5* features:

- Web browser: Internet Explorer 7.x or later, Mozilla Firefox 2.0.x or later for displaying RingMaster online help, work orders, and reports. On the Mac platform, Safari 2.0 and later are supported.
- Adobe Acrobat Reader 8.x or later (or plug-in) for reading manuals and release notes.
- HP OpenView Network Node Manager 6.4 or later must be installed prior to RingMaster if you plan to use RingMaster in an HP OpenView environment.

## RingMaster 7.4 Platform Requirements

This section describes hardware requirements for platforms (hardware and operating systems) on which *RingMaster Client 7.4* and *RingMaster Services 7.4* software can be installed. Verify that selected hardware and operating system software meets these requirements before attempting installation of *RingMaster 7.4* software.

### Hardware Requirements for RingMaster 7.4 Client

Table 1 shows minimum requirements for running the *RingMaster Client* on *Windows* and *Linux* platforms.

| Minimum Platform Requirements |
|---|
| Intel/AMD x86-compatible Dual Core processor, 2.0 GHz, 2 GB RAM, 512 MB available HD space |

Table 2 shows minimum requirements for running the *RingMaster Client* on Apple *Macintosh OS* systems.

| Minimum Platform Requirements |
|---|
| Mac G5 or Intel Core 2 Duo 2.0 GHz, 2 GB RAM, 512 MB available HD space |

### Hardware Requirements for RingMaster 7.4 Services

Hardware Requirements for supporting *RingMaster Services 7.4* are based upon Deployment Classifications of Small, Medium and Large based on the number of APs and MXs in a network, as defined by the table below.

| Number of APs | Number of MXs* | Deployment Classification |
|---|---|---|
| Up to 50 | 1 to 10 | Small |
| From 51 up to 200 | Up to 50 | Medium |
| From 201 to 1,000 | Up to 100 | Large |

* based on the number of APs or MXs, select the row entry which corresponds to the larger value

Table 4 shows minimum requirements for running *RingMaster Services* on *Windows* and *Linux* platforms.

| Deployment Classification | Minimum Platform Requirements |
|---|---|
| | Intel Quad Core Xeon, 2.66Ghz, 4 GB RAM, 150 GB Available Disk Space |
| | Intel Dual Core Xeon, 3.0 GHz, 4 GB RAM, 100 GB Available Disk Space |
| | Intel/AMD x86-compatible Dual Core processor, 2.0 GHz, 2 GB RAM, 50 GB Available Disk Space |

Table 5 shows minimum requirements for running *RingMaster Services* on Apple *Macintosh OS* systems.

| Deployment Classification | Minimum Platform Requirements |
|---|---|
| | Mac Pro/Xserve, two 3.0 GHz, 4 GB RAM, 150 GB HD |
| | Mac Pro two 2.66 GHz, 4 GB RAM, 100 GB HD |
| | Mac Pro, two 2.0 GHz, 2 GB RAM, 50 GB HD |

### Other Considerations — RingMaster 7.5 RF Planning

For consistent users of *RingMaster 7.5* RF Planning, a compatible high performance graphics card for your platform (for example, NVIDIA Go7600 or ATI/AMD Radeon x1600 or higher) is recommended.

## Preparing for Installation

Before you install *RingMaster 7.5*, verify that you have administrator privileges on the target system, a serial number, and a license key if required. If you plan to install the HP *OpenView* plug-in for *RingMaster* (which allows you to integrate *RingMaster* into an HP *OpenView* environment), make sure that the correct version of HP *OpenView* is already installed.

### User Privileges

Before you install *RingMaster*, make sure that you are logged in as a user with permission to install software, or as an administrator. If you are installing on *Linux*, you must log on with root privileges.

After installing *RingMaster Server*, you have the option of installing the regular client or the *Java* interface to get to a login page. When first installed, the system is an open system. You can create users and assign appropriate roles to grant appropriate levels of access.

### Serial Number and License Key

A serial number is included with your *RingMaster* software packaging, and is also printed on the box and CD case. If you have an internet connection, you can activate your license on-line. Otherwise, you must use the serial number and activate license keys via an out-of-band interface — from another computer, access the Trapeze public website and then transfer the information over to your *RingMaster* server. You need the serial number and license keys provided by Trapeze Networks to install and activate *RingMaster* licenses.

### Acquiring Licenses

Please consult your sales representative to purchase *RingMaster* licenses.

### License Types

Please consult with your sales representative about *RingMaster* license types. There are several licensing levels (SKU), as follows:

- EVAL — A evaluation license is valid for 90 days and enables support for up to 50 APs, unlimited MXs, and planning.
- RMTS — A base license enables support for up to 5 APs and one switch (must be installed first before installing other RMTS licenses like the RMTS-50, RMTS-100, RMTS-500 and RMTS-PLAN).
- RMTS-50 — Enables support for up to 50 additional APs.
- RMTS-100 — Enables support for up to 100 additional APs.
- RMTS-500 — Eenables support for up to 500 additional APs.
- RMTS-PLAN — Enables planning.

### Entering New Licenses

Enter the RTMS license SKU by typing/pasting a serial number and license key into the appropriate boxes and clicking **Save**. This RTMS license is activated automatically. Enter additional licenses in a similar manner. The additional licenses must be activated via an internet connection or via a terminal with internet access.

If the *RingMaster* server has an internet connection, click **Activate Now** to activate licenses. If not, click **Export Request Info** and follow instructions on the page. Generated text must be manually entered into the license server and a generated license activation file will be returned. The activation file must be copied to the *RingMaster* server and imported via the **Import Activation File** button.

Once a license has been activated, it is linked to that specific computer and cannot be moved or reactivated.

### License Violations

When a *RingMaster* network plan exceeds the limit of MPs allowed by installed licenses, *RingMaster* enters a grace period. This grace period lasts for 60 days where *RingMaster* runs normally with the additional MXs and/or MPs. Appropriate licenses should be purchased and installed during this time. If new licenses are not installed to cover the extra management, *RingMaster* will automatically begin unmanaging MPs in the network plan until the licensing situation is corrected.

### License Help

For assistance with evaluation licenses, please contact a sales representative. For assistance with purchased licenses, please contact TAC. When requesting assistance, please have the output of the *hostname* command ready and have all license serial numbers and keys available. Screenshots of any errors are also appreciated.

To set up licenses in *RingMaster 7.1,* do the folowing:

1. Launch the RingMaster Client, then select **Services** > **Licensing** from the RingMaster main menu bar to open a browser window and view product licensing information, or to get access to Trapeze Networks product licensing server Web page.
2. Enter the serial number for the base and the license key for the base license. These licenses will activate RingMaster and allow you to manage one MX and 5 APs without connecting to the activation server.
3. Click **Save**.
4. Repeat the process for remaining AP and Planning serial numbers, upgrade licenses and upgrade license keys.

Informational Note: Server requires internet connectivity for the next step, otherwise you must go through the manual process to export and import keys.

5. Click the **Activation** button.
6. Check the **Licenses Activation** column for status.

### HP OpenView Network Node Manager

If you want to integrate *RingMaster* into your HP *OpenView* environment, you can install the HP *OpenView* plug-in that is required to use *Network Node Manager* with Trapeze products. Make sure that HP *OpenView* is already installed before installing *RingMaster* with this plug-in.

## Software Installation

You perform the following tasks during *RingMaster* software installation:

1. Unpack files. (See “Unpacking Files” on page 8.)
2. Use the installation wizard. (See “Using the RingMaster Installation Wizard” on page 10.) The same *RingMaster* wizard or installer program installs either *RingMaster Services*, *RingMaster Client*, or both.

   Informational Note: The installation wizard for the *RingMaster Client* has an option to install *RingMaster Services* on the same machine. You can choose to include installation of *RingMaster Services* on the same machine or not. You *must* install the *RingMaster Client* on a machine where you install *RingMaster Services*.

3. Install the HP *OpenView* plug-in (optional). (See “Installing the HP OpenView Plug-In” on page 12.)

## Unpacking Files

### Unpacking Files on Windows Systems

1. Insert the *RingMaster* CD in a CD-ROM drive. If Autorun is enabled, wait for the installation wizard to begin. For information about using the installation wizard, see “Using the RingMaster Installation Wizard” on page 10.

   If Autorun is disabled, follow these steps:

   a. In Windows Explorer, navigate to your CD-ROM drive.

      a. In the **Windows\VM** directory, double-click **install.exe**.

      The Introduction dialog of the *RingMaster* installation wizard appears.

2. Go to “Using the RingMaster Installation Wizard” on page 10.

### Unpacking Files on Linux Systems

Informational Note: *Linux* systems must have an X (graphical) desktop environment to allow use with *RingMaster*.

1. Log in as **superuser**.
2. Insert the *RingMaster* CD in the CD-ROM drive.
3. Navigate to the folder for your platform.
4. Copy the installation binary (**install.bin**) to a temporary location on a hard drive.
5. Open a shell window.
6. Use the *cd* command to go to the directory with the installation binary.

7. In the shell window, type **sh ./install.bin** (**./install.bin** works if it has **+x** permission). The Introduction dialog of the *RingMaster* installation wizard appears.
8. Click **Next** to display the **Choose Installation Type** dialog of the installation wizard. Go to “Using the RingMaster Installation Wizard” on page 10.

### Unpacking Files on Apple Macintosh Systems

1. Insert the *RingMaster* CD in the CD-ROM drive.
2. Double-click the *RingMaster* **CD** icon.
3. Click **Continue**, then follow the on-screen instructions to install *RingMaster* software.
4. When the installation is complete, restart the computer.

## Using the RingMaster Installation Wizard

To use the installation wizard:

1. On the **Choose Installation Type** dialog, choose one of the following:
   a. To install both *RingMaster Services* and the client, click the *RingMaster Services* icon.
   b. To install only the RingMaster Client, click the RingMaster Client icon.

Informational Note: On *Windows* systems, monitoring services are started automatically when you complete installation and start automatically whenever you restart your system. On *Linux* systems, monitoring services employ a daemon that is automatically started after installation but not after a system restart.

   c. Click **Next**. The **Select Plug-in** dialog appears. To install the plug-in, select the checkbox, then go to “Installing the HP OpenView Plug-In” on page 12. If you do not want to install the plug-in, leave the box unchecked and go to step 2.
2. Click **Next**. The **License Agreement** dialog appears. After reading the *RingMaster* license agreement, accept the terms of the agreement. (Installation stops if you do not accept the terms of the license agreement.)
3. Click **Next**. The **Choose Install Folder** dialog appears.
4. Type the name of the directory in which to install *RingMaster*, or accept the default.
   - For *Windows*, the default installation directory is **C:\Program Files\Trapeze Networks\RingMaster.**
   - For *Linux*, the default installation directory is **/opt/ringmaster.**
   - For *Macintosh OS*, the default installation directory is **/Applications/RingMaster.**

   You can also type a directory name in the box or select a directory by clicking **Choose** and browsing the filesystem. To revert to the default installation directory, click **Restore Default Folder**.
5. Click **Next**. The **Pre-Installation Summary** dialog appears. Read the installation summary information. Click **Previous** to make any changes to previous settings.
6. Click **Install**. The installer installs *RingMaster Client*. *RingMaster Services* software is also installed if you selected this option. After installing software, the installer displays the service ports *RingMaster Services* uses:

- 443 — HTTPS server port
- 162 — SNMP trap receiver port

You should change one or both port numbers to prevent conflicts with other applications on the same host.

Informational Note: .If the host with RingMaster Services uses the default HTTPS port (443), and the same host also runs Microsoft Internet Information Services (IIS) on the default HTTPS port (443), there will be a conflict over the port.

Informational Note: Multiple applications cannot use the same UDP or TCP port on the same host. For example, port 443 is defined by the Internet Assigned Numbers Authority (IANA) as the well-known HTTPS port.Ports such as 445 and 447 can be used as an alternative

Informational Note: If you plan to use Auto-config to configure new MXs, you must use port 443 for RingMaster Services. When an MX requests a configuration from RingMaster, the request is sent to port 443.

7. Change the service port numbers if needed, then click **Next**. The installer displays memory limitations for the client and *RingMaster Services*
(if applicable). By default, up to 512 MB of RAM are allocated for *RingMaster Client* and 1024 MB of RAM are allocated for *RingMaster Services*. To change this amount, select new amount(s) then click **Next**.

Informational Note: Large installations must use a maximum server memory value of 1408 MB of RAM.

8. When installation is complete, a message is displayed, which reports that the installation was successful and identifies the directory in which *RingMaster* was installed.
9. Click **Done**.

## Installing the HP OpenView Plug-In

To install the HP *OpenView* plug-in:

1. Complete step 1 of the procedure in “Using the RingMaster Installation Wizard” on page 10.
2. Click **Next**. The **Select Plug-in** dialog appears.
3. Select the **HPOV** checkbox and click **Next**. The License Agreement dialog appears. After reading the *RingMaster* license agreement, accept the terms of the agreement. (Installation will stop if you choose not to accept the terms of the license agreement.) Click **Next**.
4. To specify the directory to install HP *OpenView Network Node Manager*, click **Choose**. *Network Node Manager* must have been previously installed on the system. You must specify the correct directory for *Network Node Manager* so that the HP *OpenView* plug-in is installed correctly.
   - For *Windows*, the default *Network Node Manager* installation directory is **C:\Program Files\HP OpenView\NNM**.
   - For *Linux* systems, the default directory is /opt/ov. For *Macintosh OS*, the default directory is **/Applications/HP OpenView.**

5. Click **Restore Default Folder** to reset the directory to the default value.
6. Click **Next** to display the **Pre-Installation Summary** dialog.
7. Check the installation summary information. Click **Previous** to make any changes to previous dialogs.
8. Click **Install**. When installation is complete, a dialog is displayed to report that the installation was successful. The dialog also identifies the directory in which *RingMaster* was installed.
9. Click **Done**.

Refer to the *RingMaster Managment Guide* for more information on getting started with *RingMaster*. For more information about using HP *OpenView* with Juniper products, see the chapter on using HP *OpenView* that is included in that guide.

## Installing the RingMaster Java WebStart Client

Java Web Start is a technology that allows you to access the *RingMaster* server to download and cache the *RingMaster Client* on your local computer.

Informational Note: Installing the *RingMaster Java Web Start Client* requires the installation of the Java Runtime environment. If you do not have this environment, you can download and install from a link on the *RingMaster* interface.

*RingMaster Client* software is the same whether installed or webstarted. Java Web Start installs the *RingMaster Client* and automatically updates it when server software is updated. The *RingMaster Java Web Start Client* can be launched from any of the following Web browser applications:

- Microsoft *Internet Explorer* 7.0 and later
- Mozilla *FireFox* 2.0 and later
- Macintosh *Safari* 2.0 and later

Use the following steps to install the *RingMaster Java Web Start Client* on a *Windows* platform:

1. Open a Web browser and type in the URL location field **https://<ipaddress>** where **<ipaddress>** is the IP address of the *RingMaster* server. (**:port** is required if the https port was changed at installation.)
2. Under *Java Web Start Client*, click **Launch Client**. You may see a message stating that a web site's certificate cannot be verified and asking if you want to continue. The *RingMaster Java Web Start Client* uses a self-signed certificate to identify the application to your computer, and clicking **Yes** allows the installation to continue. Client software installation begins on your computer. The IP address of the *RingMaster* server is used to identify the client.
3. After the software is installed, you can create a shortcut for your desktop and **Start** menu.
4. Once the installation is created, the full *RingMaster* application is available to you. If user login is enabled, login with your *RingMaster* credentials.
5. To uninstall the *RingMaster Java Web Start Client*, click **Start** then **Control Panel**. Open **Add/Remove Programs** and locate the *RingMaster* icon. Click **Remove** to uninstall the software from your computer. (Windows only.)

## Post Installation Configuration

This section describes configuration processes that must be performed after installation of *RingMaster* software.

### Large Scale RingMaster Deployments

In *RingMaster 7.1*, a single *RingMaster* server with default settings can support a maximum of 64 MXs or 3000 MPs, depending on which of these limits is reached first. If you disable all client session, rogue, and traffic statistics polling, a single *RingMaster* server can support up to 1000 MXR-2 MXs for configuration management and basic monitoring features.

To manage larger networks, you must deploy additional *RingMaster* servers. A typical deployment model may have each *RingMaster* server managing a “region” or logical group of MXs.

### Server Settings

#### Memory

During installation, you can specify the maximum heap size to use for *RingMaster* client and server applications. To change these settings, you must re-install the software. Maximum heap size should not be set to a value larger than the physical memory on the hardware platform. It should allow room for the OS and any other required applications. For larger networks, set server memory to 1408 MB and client memory to 512 MB..

#### Polling

Locate polling settings under **Setup > Monitoring Settings** in the *RingMaster* Web interface. *RingMaster 7.1* has auto-adjust polling, which is enabled by default and allows the server to automatically set the optimal polling interval for managing a network.

To minimize polling, enter the following settings:

- **Status Polling Interval** — 60 minutes
- **RF & Traffic Trending** — Disable
- **Rogue Detection Polling** — Disable

Launch the *RingMaster Client* and navigate to the **Devices** panel. Click **Options** and change the Device Configuration Polling Interval to 60 minutes.

## Installation Log File

During installation, an installation log file is created and placed in the *RingMaster* installation folder.

This log file is named **RingMaster_InstallLog.log.** Double-click the log file icon to read the file. You should have this log file available when you contact the Trapeze Networks Technical Assistance Center (TAC) about an installation problem.

## Upgrading RingMaster

To upgrade *RingMaster*, install the newer version over any previous version. You do not need to uninstall previous versions before installing a newer one. Before upgrading, back up the **config-db**, **services-db**, **logs**, and **backup** directories in the *RingMaster* installation directory. Best practices are to make two backups of those directories — one on the server and one off the server**.** You should back up the **config-db** directory on a regular basis to ensure you have copies of your network plans.

If you plan to uninstall a previous version of *RingMaster* before upgrading, make sure you note the serial number and license key from the **License Information** dialog box, which you access by selecting **Help > Licensing** from the main *RingMaster* window. You can also save a copy of the license information by starting *RingMaster* and clicking **Save** in the **License Information** dialog box.

Warning: You should not delete your license key when uninstalling, otherwise you will have to re-activate it.

## Uninstalling RingMaster on Windows Systems

If you do want to uninstall *RingMaster*, use the Uninstall wizard. Access the Uninstall wizard from the Trapeze Networks program list in the *Windows* **Start menu** or the **Control Panel**.

To uninstall *RingMaster* on *Windows* systems:

1. Select **Start > Programs > Trapeze Networks > RingMaster > Uninstall RingMaster**. The Uninstall wizard appears.
2. Click **Uninstall**.

   The *RingMaster* **Uninstall Options** dialog appears. By default, *RingMaster* removes the following options:

   - **Network plans**
   - **Access control**
   - **Monitoring service database** (if the monitoring service was installed along with the client on this machine)
   - **License information**

   Informational Note: To prevent an item from being uninstalled, clear the check box next to that item.

   The monitoring service and HP *OpenView* plug-in are uninstalled automatically.

   Caution: If you delete an item, the item is permanently lost. For example, if you delete the database directory, all data collected by the monitoring service is lost, including historical trend data.

3. Click **Continue**. The uninstall program reports its progress. When the uninstall process is complete, the uninstall program reports that the items were successfully deleted.
4. Click **Done**.

## Uninstalling RingMaster on Linux Systems

To uninstall *RingMaster* on *Linux* systems:

1. Log in as superuser.
2. In a shell window, change directories to the *RingMaster* installation directory. By default, the installation directory is **/opt/ringmaster**.

3. At the prompt, enter **cd UninstallerData**.
4. At the prompt, enter **./Uninstall_RingMaster**.
5. The Uninstall wizard appears.
6. Click **Uninstall**.

   The *RingMaster* **Uninstall Options** dialog appears.

   By default, *RingMaster* removes the following options:

   - **Network plans**
   - **Access control**
   - **Monitoring service database** (if the monitoring service was installed along with the client on this machine)
   - **License information**

   To prevent an item from being uninstalled, clear the checkbox next to that item. The monitoring service and HP *OpenView* plug-in are uninstalled automatically.

   Caution: If you delete an item, the item is permanently lost. For example, if you delete the database directory, all data collected by the monitoring service is lost, including historical trend data.

7. Click **Continue**. The uninstall program reports its progress.
8. Click **Done**.

## Uninstalling RingMaster on Macintosh Systems

To uninstall *RingMaster* on *Macintosh OS* systems:

1. Open the **Applications** folder, either from your Macintosh hard disk or using the **Go** menu of the **Finder**.
2. Double-click on the **Uninstall RingMaster program**, located above the **Utilities** folder.
3. The uninstall program begins. An Authentication screen appears.
4. Select **Complete Uninstall**.
5. Click **Next**.
6. When the uninstall has completed, close the final screen.

## Using RingMaster

You should consult other Trapeze Networks documentation that describe planning, configuration and monitoring/control of WLANs using the *RingMaster* software you have installed.

This includes the following publications:

- *RingMaster 7.5 Planning Guide* — This guide provides initial use of RingMaster 7.5 Client software to plan a WLAN using Juniper Networks Mobility System hardware and MSS software.
- *RingMaster 7.5 Configuration Guide* — This guide provides configuration details for WLANs using *RingMaster 7.5 Client* software with Trapeze Mobility System hardware and MSS software.
- *RingMaster 7.5 Management Guide* — This guide provides details on how to manage and monitor a WLAN using *RingMaster 7.5 Client* software with Trapeze Mobility System hardware and MSS software.